

# Object-Role Modeling Workbook

## Data Modeling Exercises using ORM and NORMA

Written as a sequel to the author's previous book *Object-Role Modeling Fundamentals*, this book briefly reviews the fundamentals of ORM, and then discusses additional topics such as model reports generation, vocabulary glossaries, relational mapping options, annotated relational schemas, schema optimization, and data modeling patterns. Written in easy-to-understand language, it illustrates each topic with simple examples, and explains how to use the freeware NORMA tool to implement the ideas discussed. The book also includes many practical exercises to promote expertise in the techniques covered, with answers provided to all the exercise questions.

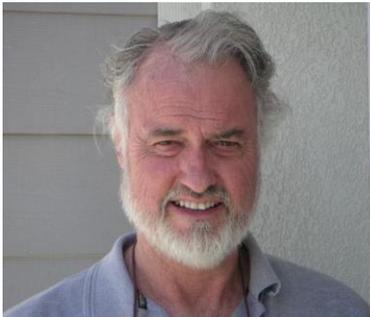
### From Dr. Herman Balsters' foreword:

*The practical side of this book is that it shows how to systematically use NORMA together with your knowledge of ORM to address these challenges. Once you have experienced these challenges, this book helps you to become a better modeler than you were previously. The carefully crafted solutions to the modeling exercises are described in great detail. As ever, Terry Halpin explains the material—which is often intrinsically complex—as only the great teachers can: he uses simple and straightforward language, and his solutions follow a completely logical sequence of reasoning. I often envy Halpin's style of writing and explaining.*

*Another asset of the book is the introduction of a completely textual modelling language, which verbalizes the content of ORM diagrams. The verbalizations offered in the book are given in such a way that non-technical domain experts can easily read and write fact-based specifications of the domain to be modelled. Another benefit of these verbalizations is that they offer the possibility to validate the correctness of the models, since such textual specifications can be easily understood, and therefore assessed, by non-technical domain experts. One can easily move back and forth between the verbalizations and their graphical ORM model counterparts.*

*It seemed difficult for me to consider a book on ORM that could be a real complement to all of the other books on ORM that Terry Halpin has written. This book, however, has convinced me that such a book could be written. Indeed, this is a workbook on ORM: by working through this book you can become a better, accomplished data modeler and database designer than you were previously.*

*I therefore highly recommend this book to any student, teacher, or professional interested in constructing information systems. The world needs high-quality information systems, and this book provides an excellent resource to help one attain that goal.*



**Dr Terry Halpin** is internationally recognized as the leading authority on ORM. Currently a data modeling consultant and an adjunct professor in computer science, he has many years of experience in developing and teaching data modeling technology in both industry and academia. He has authored over 200 technical publications and nine books, and has co-edited nine books on information systems modeling research. He is an associate editor or reviewer for several academic journals, is a regular columnist for the *Business Rules Journal*, and is a recipient of the DAMA International Achievement Award for Education and the IFIP Outstanding Service Award.

Author: **Terry Halpin**

Print ISBN: **9781634621045**

Kindle: **9781634621052**

ePub: **9781634621069**

PDF: **9781634621076**

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